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AUTHOR Mowen, Kenneth A.; And Others
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ABSTRACT

The general purpose of the occupational analysis is to provide workable, basic information dealing with the many and varied duties performed in the commercial artist occupation. The document opens with a brief introduction followed by a job description. The bulk of the document is presented in table form. Seventeen duties are broken down into a number of tasks and for each task a two-page table is presented, showing on the first page: tools, equipment, materials, objects acted upon; performance knowledge (related also to decisions, cues and errors); safety--hazard; and on the second page: science; math--number systems; and communications (performance modes, examples, and skills skills and concepts). The duties include: perform business procedures; draw cartoons; make layouts and illustrations; render in continuous tone; prepare lettering and mechanical drawings; take, develop, print, and enlarge photographs; prepare visual projectuals, isometric and exploded views, sectional isometric views, perspective drawings, schematics, charts, and diagrams; and fit and mark copy. Appended are a list of tools and equipment needed, and a list of safety factors. (BP)

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Occupational Analysis

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COMMERCIAL ARTIST

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Instructional Materials Laboratory
Trade and Industrial Education
The Ohio State University

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AN ANALYSIS OF THE COMMERCIAL ART OCCUPATION

developed by

Kenneth A. Mowen
Instructor, Commercial Art
Montgomery County J.V.S.
Clayton, Ohio

Lawrence Hartman
Instructor, Commercial Art
Four County J.V.S.
Archbold, Ohio

Marshall J. Cotner
Consultant
Commercial Artist
Carroll, Ohio

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Director: Tom L. Hindes
Coordinator: William L. Ashley

The Instructional Materials Laboratory
Trade and Industrial Education
The Ohio State University

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FOREWORD

The occupational analysis project was conducted by The Instructional Materials Laboratory, Trade and Industrial Education, The Ohio State University in conjunction with the State Department of Education, Division of Vocational Education pursuant to a grant from the U.S. Office of Education.

The Occupational Analysis project was proposed and conducted to train vocational educators in the techniques of making a comprehensive occupational analysis. Instructors were selected from Agriculture, Business, Distributive, Home Economics, and Trade and Industrial Education to gain experience in developing analysis documents for sixty-one different occupations. Representatives from Business, Industry, Medicine, and Education were involved with the vocational instructors in conducting the analysis process.

The project was conducted in three phases. Phase one involved the planning and development of the project strategies. The analysis process was based on sound principles of learning and behavior. Phase two was the identification, selection and orientation of all participants. The training and workshop sessions constituted the third phase. Two-week workshops were held during which teams of vocational instructors conducted an analysis of the occupations in which they had employment experience. The instructors were assisted by both occupational consultants and subject matter specialists.

The project resulted in producing one hundred two trained vocational instructors capable of conducting and assisting in a comprehensive analysis of various occupations. Occupational analysis data were generated for sixty-one occupations. The analysis inlcuded a statement of the various tasks performed in each occupation. For each task the following items were identified: tools and equipment; procedural knowledge; safety knowledge; concepts and skills of mathematics, science and communication needed for successful performance in the occupation. The analysis data provided a basis for generating instructional materials, course outlines, student performance objectives, criterion measures, as well as identifying specific supporting skills and knowledge in the academic subject areas.

PREFACE

The basic strategy of the developers was to define the area of commercial art, delineate major duty areas and to organize and develop task statements as far as possible within the time frame limitations of the workshop. Prior to the workshop, a list of various tasks was rated for frequency of performance by a sampling of practicing commercial artists. In concept, these task statements, although not necessarily all inclusive, represent the initial step leading to a fully developed occupational analysis. The writers identified the skills and knowledge related to each task and organized the tasks into logical units of performance. In the utilization of this analysis, it will be desirable to continue the breakdown of the task list into minor and sub-task statements before proceeding to the development of the course outline.

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The Ohio State University
Columbus, Ohio

Jodi Beittel, Communications
Columbus, Ohio

Diana L. Buckeye, Mathematics
University of Michigan
Avon Lake, Ohio

Rick Fien, Chemistry
The Ohio State University
Beachwood, Ohio

N. S. Gidwani, Chemistry
Columbus Technical Institute
Columbus, Ohio

Bruce A. Hull, Biology
The Ohio State University
Columbus, Ohio

Donald L. Hyatt, Physics
Worthington High School
Worthington, Ohio

Glenn Mann, Communications
Columbus, Ohio

Jerry McDonald, Physical Sciences
Columbus Technical Institute
Reynoldsburg, Ohio

Colleen Osinski, Psychology
Columbus Technical Institute
Columbus, Ohio

David Porteous, Communications
University of Connecticut
Colchester, Connecticut

James A. Sherlock, Communications
Columbus Technical Institute
Columbus, Ohio

Jim VanArsdall, Mathematics
Worthington High School
Worthington, Ohio

Lillian Yontz, Biology
The Ohio State University
Caldwell, Ohio

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Peg Bushelman	Typist
Carol Fausnaugh	Typist
Mindy Fausnaugh	Typist
Rita Hastings	Typist
Carol Hicks	Typist
Sue Holsinger	Typist
Barbara Hughes	Typist
Carol Marvin	Typist
Patti Nye	Typist
Kathy Roediger	Typist
Mary Salay	Typist

JOB DESCRIPTION

Commercial art is a cluster of inter-related and clearly identifiable duties. For practical reasons the breakdown of duties into tasks was rather broad in order to catagorize the wide range of sub-tasks falling within the artist's duties. The commercial artist is involved in developing ideas into graphic forms using a variety of methods and media. The artist performs basic skills and techniques in compliance with the various principles of graphics and design to produce visual products to meet the needs of various clients.

(TASK STATEMENT) PERFORM BUSINESS PROCEDURES

TOOLS, EQUIPMENT, MATERIALS, OBJECTS ACTED UPON	PERFORMANCE KNOWLEDGE	SAFETY – HAZARD
Typewriter Calculator Accounting books Forms, record Paper Pen & pencil Eraser	Billing documents Coding of ethics Comprehension of necessary: Accounting records Business records Time sheets Work orders Release forms	See Appendix

DECISIONS	CUES	ERRORS
What records are required and in what detail Determine allowance of time for statements to be paid Determine correct pay scale for specific detail performed	Availibility of records Nature of records	Mathematical inaccuracies Incorrect addresses for billing Follow-up on invoicing

SCIENCE	MATH – NUMBER SYSTEMS	COMMUNICATIONS
	Basic mathematics Accounting skills	Interpret content and value of specific records

(TASK STATEMENT) DRAW CARTOONS (FOR SINGLE OR MULTIPLE PRESENTATION IN ANY MEDIA)

TOOLS, EQUIPMENT, MATERIALS, OBJECTS ACTED UPON	PERFORMANCE KNOWLEDGE	SAFETY - HAZARD
Basic tools Basic equipment Basic materials Morgue or reference library	Analyze problem and choose situation Fit gag or caption to situation Make thumbnails or roughs Make comprehensive Prepare for reproduction	See appendix

DECISIONS	CUES	ERRORS
Determine drawing technique Determine drawing media Determine drawing specifications Select appropriate thumbnails or rough	Instructions, policy, intended use Instructions intended use, availability of media	To insure the concept of cartoon, realistic, stylized or caricaturization for determined job

SCIENCE	MATH - NUMBER SYSTEMS	COMMUNICATIONS
		Appropriate diction, denotative - connotative words, clarity of expression, vocabulary, usage, spelling, details and inference, logic, emotional appeals (propaganda devices) Recommendation report - oral Classification Reading comprehension [These items have a usage from time to time, but seldom are used in a single package] [Principle of "Exaggerated Definition" may be a term to be understood in the area of cartooning] Transfer information between client and artist for use in the creation of a piece of art

(TASK STATEMENT) MAKE A LAYOUT

TOOLS, EQUIPMENT, MATERIALS, OBJECTS ACTED UPON

Basic tools plus
- Felt pens
- Fixatif
- Pencil, chisel lead

Basic equipment plus
- Book, type specimen
- Pastels
- Projector, opaque
- Visualizer (Lacey-Luci)

Basic materials plus
- Paper, graphite
- Paper, layout

PERFORMANCE KNOWLEDGE

Analyze layout (design) elements and requirements
Make a series of minature (thumbnail) sketches of possible sizes and arrangements of elements
Prepare full sized layout to further test the suitability of the selected thumbnail
Develop layout from rough to comprehensive form
Evaluation of layout by artist, art director and client
Revise, if required

SAFETY - HAZARD

See appendix

DECISIONS	CUES	ERRORS
Selection of most suitable thumbnail	Intended use, instructions, aesthetics, taste	Ineffective layout
How comprehensive the layout is to be executed	Intended use, cost & time considerations	Poor comprehensibility
What materials should be used	Availiability of materials, cost & time consideration	Mechanical errors

SCIENCE

Differences in absorption and radiation of energy between dark rough surfaces and light, smooth, polished surfaces
Color
- Effect of illumination on color
- Surface color
- Mixing spectrum colors
- Complimentary colors, secondary & tertiary
- Additive methods of color mixing
- Subtractive methods of color mixing

MATH - NUMBER SYSTEMS

Determination of facts involving sectors of a circle
Determination of facts involving lines tangent to circles
Ratio and proportion
Geometric constructions
Development of graphs comparing two complimentary sets of figures

COMMUNICATIONS

Appropriate diction
Clarity of expression
Vocabulary
Usage
Spelling
Details and inference
Logic
Definition - written
Technical terminology
Transfer information between client and artist for use in the creation of a piece of art

(TASK STATEMENT) MAKE AN ILLUSTRATION

TOOLS, EQUIPMENT, MATERIALS, OBJECTS ACTED UPON

Basic tools plus
- Brushes
- Mall stick
- Palette and palette knife

Basic equipment plus
- Projector, opaque
- Visualizer (La[illegible]y-Luci)

Basic materials plus
- Canvas
- Charcoal
- Paint, oil, acrylic and watercolor
- Pastels
- Plywood/Masonite

PERFORMANCE KNOWLEDGE

Analyze client's needs
Application of concepts, principles and rules of design and color
Comprehension or intended purpose
Analysis or procedures
Application of media

SAFETY - HAZARD

Pigments & solvents - skin and lung irritants, clothing damage
See appendix

DECISIONS	CUES	ERRORS
Selection of media Determination of size Judgment in color selection and use	Instructions, aesthetics, taste, time and cost considerations, intended use	Failure to meet client's needs, dead lines, or due dates Ineffective illustration Failure to check color key from printing house

SCIENCE

Differences in absorption and radiation of energy between dark rough surfaces and light, smooth, polished surfaces [light source & intensity]
Nature of light [reflection, refraction and dispersion]
Color
- Effect of illumination on color
- Surface color
- Mixing spectrum colors
- Complimentary colors, secondary & tertiary
- Additive methods of color mixing
- Subtractive methods of color mixing

Illusion (optical)
- Effects of color juxtaposition
- Multi-color optical illusion
- Illusion in shape and line
- Illusion in texture

Principles of design
Elements of design

MATH – NUMBER SYSTEMS

Ratio and proportion

COMMUNICATIONS

Appropriate diction
Denotative, connotative words
Clarity of expression
Vocabulary
Usage
Spelling
Details and inference
Logic
Emotional appeals (propaganda devices)
Technical terminology
Transfer information between client and artist for use in the creation of a piece of art
Receive & interpret verbal & written instructions
Understand technical vocabulary

(TASK STATEMENT) RENDER IN CONTINUOUS TONE (GRAPHITE, WASH, OPAQUE AND AIRBRUSH)

TOOLS, EQUIPMENT, MATERIALS, OBJECTS ACTED UPON

Basic tools plus
- Dispenser, spout, water
- Well, slant or cups, nesting

Basic equipment plus
- Airbrush
- Compressor or tank, air with valve assembly
- Press, dry mount

Basic materials plus
- Acetate
- Color, opaque, grays, moist watercolor
- Color, transparent, liquid
- Paper, frisket
- Tissue, dry mount

PERFORMANCE KNOWLEDGE

Analyze task requirements
Follow procedures for rendering
Follow procedure for paint mixing

SAFETY – HAZARD

Compressor - excess pressure
Electrical - shock, fire
Air tank - sudden release of pressure (jet effect)

DECISIONS

Selection of media
Selection of color harmonies
Selection of best composition for most effective results

CUES

Availability
Cost and time considerations
Instructions
Intended use

ERRORS

Inconsistency of light source
Fails to meet task requirements
Poor end result
Unaffective color combinations for required printing results

SCIENCE

Bernoulii's principle - air brush theory (operation)
Principles of design - patterns of value
Nature of light [spectrum, prism theory, geometric optics]
Color
- Effect of illumination on color
- Surface color
- Mixing spectrum colors
- Complimentary colors, secondary & tertiary
- Additive methods of color mixing
- Subtractive methods of color mixing

MATH – NUMBER SYSTEMS

Ratio and proportion [ratio - value or color mixing]

COMMUNICATIONS

Appropriate diction
Denotative - connotative words
Clarity of expression
Vocabulary
Usage
Spelling
Details and inference
Logic
Emotional appeals (propaganda devices)
Technical terminology
Transfer information between client and artist for use in the creation of a piece of art [interpretation of written and verbal instructions]

(TASK STATEMENT) PREPARE LETTERING

TOOLS, EQUIPMENT, MATERIALS, OBJECTS ACTED UPON

Basic tools plus
- Brushes, lettering
- Pens, chisel
- Pens, speedball
- Pens, steel brush
- Stick, mall

Basic equipment

Basic materials plus
- Board, poster
- Blanks, sign metal
- Paints, lettering, permanent
- Paints, lettering, tempera
- Paper, parchment

PERFORMANCE KNOWLEDGE

Analyze requirements
Layout area (see layout)
Rough in lines and letters
Check spelling
Execute lettering
Evaluate for accuracy & completeness

SAFETY - HAZARD

See appendix

DECISIONS

Determine sequence and relative size of elements
Select suitable tools (pen, brush, etc.)
Select letter style (s)
Select colors

CUES

Aesthetics, taste, instructions, legibility, intended use, audience served

ERRORS

Misspelling
Inconsistency of letter style
Misapplication of design principles
Ineffective or incorrect size

SCIENCE

Principles of design
Principles of color harmony
Reaction of mixing color pigments to produce a third color

MATH - NUMBER SYSTEMS

Ratio and proportion
Measurement of length

COMMUNICATIONS

Transfer information between client and artist for use in the creation of a piece of art

(TASK STATEMENT) PREPARE A MECHANICAL DRAWING

TOOLS, EQUIPMENT, MATERIALS, OBJECTS ACTED UPON

Basic tools plus
- Compass, beam
- Compass, drop
- Divider, proportional
- Ellipse guides
- Punch, pin register
- Register, pin
- Shield, erasing

Basic equipment plus
- Projector, opaque
- Visualizer (Lacey-Luci)

Basic materials plus
- Acetate
- Color, red transparent (Grumbacher Patent Red)
- Photostats/Velox/P.M.T.
- Pressure sensitive materials (screens, letters, symbols)
- Proofs, type
- Pumice, powdered
- Rubylith/Amberlith or equivalent

PERFORMANCE KNOWLEDGE

Choose up-to-date color screen guide for color percentages
Interpret layout
Locate position of elements
- Copy perimeter, crop marks, internal areas

Paste up elements
Choose methods of handling illustrations - same size, oversize
Apply screens & textures
Construct overlays
Marginal instructions
Cover tissue flaps

SAFETY – HAZARD

See appendix

DECISIONS

Decide method of paste up
Decide method of positioning illustrations
Decide method of accompishing color overlap
Make correct decisions on color and color screens for percentages

CUES

Aesthetics, taste, instructions, ease of reproduction, application of procedure

ERRORS

Inaccuracy of measurements
Omission of elements
Damage to elements
Incorrect information to printer

SCIENCE

Color
- Effect of illumination on color
- Surface color
- Mixing spectrum colors
- Complimentary colors, secondary & tertiary
- Additive methods of color mixing
- Subtractive methods of color mixing
- [color, illusion (optical)]

Principles of design - for clarity we mean to include all areas of spatial arrangement
Nature of light - concave and convex lens
- Determination of focal length
- Magnification

Illusion
- Effects of color juxtaposition
- Multi-color optical illusion
- Illusion in shape and line
- Illusion in texture
- [variable sensitivity of films to reflected color]

MATH – NUMBER SYSTEMS

Geometric constructions
Ratio and proportion
Measures of length

COMMUNICATIONS

Appropriate [illegible]tion
Denotative - connotative words
Clarity of expression
Vocabulary
Usage
Spelling
Details and inference
Logic
Emotional appeals (propaganda devices)
[Instruction Transfer]
Proposal - written or oral
Technical terminology
Transfer information between client and artist for use in the creation of a piece of art [transfer oral, written]
[Interpret graphic layout, understand technical vocabulary, evaluate visual quality of elements, write marginal notes for printer]

(TASK STATEMENT) TAKE A PHOTOGRAPH

TOOLS, EQUIPMENT, MATERIALS, OBJECTS ACTED UPON

Camera
Film
Lights
Meter, exposure
Props

PERFORMANCE KNOWLEDGE

Comprehend intended purpose
Apply concepts, principles and rules of design and color
Arrange lights, props, etc.
Compute reflected light
Adjust camera
Load film
Expose film

SAFETY – HAZARD

See appendix

DECISIONS	CUES	ERRORS
Selection of camera type, props, etc. Selection of film type Judgment in application of design elements and principles	Cost & time, availability, instructions Aesthetics, taste, instructions	Faulty decisions Improper camera operation

SCIENCE

Differences in absorption and radiation of energy between dark rough surfaces and light, smooth, polished surfaces
Principles of design - for clarity, include all areas of spatial arrangement
Nature of light
- Electromagnetic spectrum
- Geometrical optics
  - straight line, reflection, refraction, dispersion
- Concave & convex lens
  - determination of focal length, magnification
- Camera & other optical instruments
  - speed of lens (light gathering power)

Color
- effect of illumination on color, surface color, mixing spectrum colors, complimentary colors, secondary & tertiary, additive methods of color mixing, subtractive methods of color mixing

Illusion (optical)
- effects of color juxtaposition, multi-color optical illusion, illusion in shape and line, illusion in texture

MATH – NUMBER SYSTEMS

Basic arithmetic

COMMUNICATIONS

Logic
Technical terminology
Transfer information between client and artist for use in the creation of a piece of art

(TASK STATEMENT) DEVELOP PHOTOGRAPHIC FILM

TOOLS, EQUIPMENT, MATERIALS, OBJECTS ACTED UPON	PERFORMANCE KNOWLEDGE	SAFETY - HAZARD
Chemicals Hangers Light, safe Scissors Sinks Tanks Timer Tongs Trays	Mix chemical solutions Load films in tanks or holders Develop steps and times Wash Dry	Chemicals - skin irritant, eye irritant, staining, clothing damage See appendix

DECISIONS	CUES	ERRORS
Selection of developer Selection of development times	Implies - application of procedure	Contamination of solutions Wrong solutions Light contamination Failure to follow instructions

SCIENCE	MATH – NUMBER SYSTEMS	COMMUNICATIONS
Chemistry of developing formulas Effect of light on photographic emulsions	Liquid and dry measures Measures of weight Measure of temperature	Read technical data sheets Understand technical vocabulary

(TASK STATEMENT) PRINT AND/OR ENLARGE A PHOTOGRAPHIC NEGATIVE

TOOLS, EQUIPMENT, MATERIALS, OBJECTS ACTED UPON	PERFORMANCE KNOWLEDGE	SAFETY – HAZARD
Box, paper stora Chemicals Dodging tools Enlarger Frame, printing Light, safe Paper, photographic Printer, contact Sink Timer Tongs Trays Dryer	Print or enlarge negative Expose paper Develop paper Dry paper	Chemicals - skin & eye irritant, staining, clothing damage See appendix

DECISIONS	CUES	ERRORS
Method of producing print – contact or enlarge Selection of paper type Selection of developer Selection of drying method gloss or matt finish	Implied - application of procedure Intended use Cost and time Availability Instructions	Contamination of chemicals Contamination by light Improper ferrotyping

SCIENCE	MATH – NUMBER SYSTEMS	COMMUNICATIONS
Chemistry of developing formulas Effect of light on photographic emulsions Principles of dodging Principles and effects of enlargment on texture	Measures of weight Liquid and dry measures Measure of temperature	Read technical data sheets Understand technical vocabulary

(TASK STATEMENT) PREPARE VISUAL PROJECTUALS (FOR OVERHEAD, FILMSTRIP & SLIDE PROJECTION)

TOOLS, EQUIPMENT, MATERIALS, OBJECTS ACTED UPON

Basic tools plus
- Pens, felt tip

Basic equipment plus
- Camera and accessories
- Copier, Thermofax,etc.
- Darkroom facilities
- Projector, filmstrip
- Projector, motion pictures
- Projector, opaque
- Projector, overhead
- Projector, slide

Basic materials plus
- Acetate
- Film, orthochromatic
- Film, panchromatic
- Film, copier
- Frame, overhead
- Pressure sensitive materials (screen, letters, etc)

PERFORMANCE KNOWLEDGE

Analyze task requirements
Layout of area (see layout)
Prepare hand made projectual or prepare mechanical art
Make projectual
- Camera (see photography)
- Thermo-fax, 3-m copier, etc.

Frame projectual

DECISIONS

Select production method
- hand (felt pen, grease pencil)
- machine (camera, thermo-fax, 3-m)

Select appropriate tools for method of production

CUES

Cost & time, ease of reproduction, aesthetics, instructions

Implied - application of procedure

ERRORS

Spelling errors
Camera errors
Copying machine errors

SAFETY – HAZARD

See appendix

SCIENCE

Principle of design - for clarity, include all areas of spatial arrangement
Nature of light
- Electromagnetic spectrum
- Geometrical optics
  - straight line, reflection, refraction, dispersion
- Concave & convex lens
  - determination of focal length, magnification
- Camera & other optical instruments
  - speel of lens (light gathering power)

Color
- Effect of illumination on color
- Surface color
- Mixing spectrum colors
- Complimentary colors, secondary, & tertiary
- Additive methods of color mixing, subtractive methods of of color mixing

Illusion (optical)
- Effects of color juxtaposition, multi-color optical illusion, illusion in shape and line, illusion in texture

MATH – NUMBER SYSTEMS

Basic arithmetic
Ratio and proportion
Geometric constructions (dimensional)
Reading and interpret charts, tables and/or graphs
Giving a coding system, recognize and identify each unit involved by assigning necessary symbols, numerical or literal

COMMUNICATIONS

Appropriate diction, denotative - connotative words, clarity of expression, vocabulary, usage, spelling, details and inference, logic, emotional appeals (propaganda devices)
Recommendation report - oral and written
Process report or instruction - oral and written
Physical experimentation report - oral and written
Proposal - oral and written
Progress report - oral and written
Description of mechanism - oral and written
Definition - oral and written
Classification
Technical terminology
Transfer information between client and artist for use in the creation of a piece of art

(TASK STATEMENT) PREPARE AN ISOMETRIC VIEW OF AN OBJECT AND/OR EXPLODED VIEW

TOOLS, EQUIPMENT, MATERIALS, OBJECTS ACTED UPON	PERFORMANCE KNOWLEDGE	SAFETY – HAZARD
Basic tools plus Pen, technical Templates, ellipse Basic equipment plus Machine, drafting Projector, opaque Register, pin Visualizer (Lacey–Luci) Basic materials plus Acetate Color, red, transparent (Grumbacher Patent Red) Photostats/Velox/PMY Pressure sensitive materials (numbers, arrows, etc) Proofs, type Punch, pin register Rubylith/Amberlith, etc	Read and interpret (in sketches) the blue prints Disassemble device (noting sequence of breakdown) Layout and draw lines of axis, centerlines etc. & make rough drawing Trace to board and finish drawing in desired media Balloon and letter (by hand or mech.) where it is needed Prepare for reproduction	See appendix

DECISIONS	CUES	ERRORS
Determine format	Instructions, aesthetics Cost and time Ease of reporduction	[illegible] or end product

SCIENCE	MATH – NUMBER SYSTEMS	COMMUNICATIONS
Principles of design - for clarity, include all areas of spatial arrangement [mechanical principles - some ability]	Measures of length Ratio and proportion Geometric constructions Given a coding system, recognize and identify each unit involved by assigning necessary symbols, numerical or literal	Logic Description of mechanism - oral Technical terminology Reading comprehension Transfer information between client and artist for use in the creation of a piece of art [Receive and interpret written and verbal instructions]

(TASK STATEMENT) PREPARE A SECTIONAL ISOMETRIC VIEW OF AN OBJECT

TOOLS, EQUIPMENT, MATERIALS, OBJECTS ACTED UPON	PERFORMANCE KNOWLEDGE	SAFETY – HAZARD
Basic tools plus Pen, technical Templates, ellipse Basic equipment plus Machine, drafting Projector, opaque Register, pin Visualizer (Lacey–Luci) Basic materials plus Acetate Color, red, transparent (Grumbacher Patent Red) Photostats/Velox/PMT Pressure sensitive materials (numbers, arrows, etc) Proofs, type Punch, pin register Rubylith/Amberlith, etc.	Interpret blue prints Disassemble unit Draw rough sketches and note any part to be accentuated Redraw from tracing or light line to board Baloon, call-out and/or identify all necessary components Letter (hand or mechanical) Prepare for reproduction	See appendix

DECISIONS	CUES	ERRORS
Determine perspective point of view Determine media to be used Determine size and format	Aesthetics Taste Instructions Cost and time Ease of reproduction	Poor end product

SCIENCE	MATH – NUMBER SYSTEMS	COMMUNICATIONS
Principles of perspective Principles of design - for clarity, include all areas of spatial arrangement Nature of light [effect of light on elements (values)] Color Effect of illumination on color Surface color Mixing spectrum colors Complimentary colors, secondary & tertiary Additive methods of color mixing Subtractive methods of color mixing Illusion (optical) Effects of color juxtaposition Multi-color optical illusion Illusion in shape and line Illusion in texture Principles of mechanics	Basic arithmetic Measures of length Ratio and proportion Locate by approximation rational numbers and integers on the number line (sequential ordering, call outs to parts lists	Logic Transfer information between client and artist for use in the creation of a piece of art

(TASK STATEMENT) PREPARE A PERSPECTIVE DRAWING (MECHANICAL)

TOOLS, EQUIPMENT, MATERIALS, OBJECTS ACTED UPON	PERFORMANCE KNOWLEDGE	SAFETY – HAZARD
Basic tools plus Pen, technical Basic equipment plus Visualizer (Lacey–Luci) Basic materials	Analyze blue prints Set up necessary elements of mechanical perspective problem Draw perspective in pencil on layout or tracing paper Trace and finish comprehensive layout Drawing in media required Prepare work for reproduction or mounting	See appendix

DECISIONS	CUES	ERRORS
Determine perspective point of view	Taste, aesthetics, instructions	Poor end result
Determine color scheme	Aesthetics, taste, intended use, cost of reproduction and ease	
Determine composition	Cost and time, ease of reproduction, instructions, intended use	
Determine media to be used		

SCIENCE	MATH – NUMBER SYSTEMS	COMMUNICATIONS
Differences in absorption and radiation of energy between dark rough surfaces and light, smooth, polished surfaces [in color (prismatic)] Principles of perspective Principles of design - for clarity include all areas of spatial arrangement Nature of light Electromagnetic spectrum, geometrical optics (straight line, reflection, refraction, dispersion), concave and convex lens (determination of focal length, magnification), camera & and other optical instruments Color Effect of illumination on color, surface color, mixing spectrum colors, complimentary colors (secondary & tertiary), additive methods of color mixing, subtractive methods of color mixing Illusion (optical) Effects of color juxtaposition, multi-color optical illusion, illusion in shape and line, illusion in texture	Basic arithmetic Measures of length	Logic Technical Terminology Transfer information between artist and client

(TASK STATEMENT) PREPARE A SCHEMATIC/AND CHARTS & DIAGRAMS

TOOLS, EQUIPMENT, MATERIALS, OBJECTS ACTED UPON	PERFORMANCE KNOWLEDGE	SAFETY – HAZARD
Basic tools plus Templates, symbol Sweeps and ellipse guides Basic equipment plus Machine, drafting Projector, opaque Register, pin Visualizer (Lacey–Luci) Basic materials plus Pressure sensitive materials (colors, screens, shading sheets, symbols	Analyze prints, sketches and written information to be used Set up lines and/or diagram or graph design to be used in rough Select symbols and signs and rough in Trace drawing on board Do mechanical or hand lettering Prepare for reproduction	See appendix

DECISIONS	CUES	ERRORS
Determine board composition Determine letter style Determine size for reduction	Aesthetics, taste, instructions, audience, intended use	Spelling errors Misinterpreted signs or symbols Details (Tech): omission

SCIENCE	MATH – NUMBER SYSTEMS	COMMUNICATIONS
Principles of design - for clarity include all areas of spatial arrangement	Basic arithmetic Basic math Measures of length Measures of weight Measures of temperature Liquid and dry measures Ratio and proportion Development of graphs comparing two complimentary sets of figures Given a coding system, recognize and identify each unit involved by assigning necessary symbols, numerical or literal	Appropriate diction, denotative-connotative words, clarity of expression, vocabulary, usage, spelling, details and inference, logic, emotional appeals (propaganda devices) Technical terminology Transfer information between client and artist for use in the creation of a piece of art

(TASK STATEMENT) FIT COPY

TOOLS, EQUIPMENT, MATERIALS, OBJECTS ACTED UPON

Basic tools plus
- Book, type specimen
- Copy, typewritten
- Gauge, line
- Rule, pica
- Scale, proportional (slide rule)

PERFORMANCE KNOWLEDGE

Analyze copy preparation for completeness
Measure copy area as shown on layout
Make line by line character count
Select type style, size and leading
Determine characters per pica
Determine if the type will fit the space allotment
Recalculate, if necessary
Recheck, if necessary for accuracy

SAFETY – HAZARD

See appendix

DECISIONS	CUES	ERRORS
Choose type of composition method Choose typographic supplier Decide suitability of type style, size and leading Decide to repeat operations, if required	Aesthetics, time and cost, intended use Past performance of supplier, supplier's reputation in the industry	Mathematical errors Misreading charts Failure to recheck calculations Failure of copy to fit required area

SCIENCE

Principles of design, for clarity, include all areas of spatial arrangement
Copy block value

MATH – NUMBER SYSTEMS

Basic arithmetic
Ratio and proportion
Read and interpret tables, charts, and/or graphs
Given a coding system, recognize and identify each unit involved by assigning necessary symbols, numerical or literal

COMMUNICATIONS

Appropriate diction, denotation/connotation, clarity of expression vocabulary, usage, spelling, details and inference, logic, emotional appeals (propaganda devices)
Recommendation report–oral and written
Physical experimentation report–oral and written
Progress report–oral and written
Definition–oral and written
Classification
Technical terminology
Reading comprehension
Reading speed
Transfer information between client and artist for use in the creation of a piece of art

(TASK STATEMENT) MARK COPY

TOOLS, EQUIPMENT, MATERIALS, OBJECTS ACTED UPON	PERFORMANCE KNOWLEDGE	SAFETY – HAZARD
Basic tools Book, type specimen Copy, typewritten Pencils, colored Acetate grease pencil or china marker	Type composition methods Marking procedures in general and for specific supplier	See appendix

DECISIONS	CUES	ERRORS
Choose typographic supplier Choose type composition method Choose up-to-date typography books for latest fonts in cold or hot type	Past performance of supplies, supplier's reputation in industry, cost and time consideration	Incomplete marking Illegibility of marking Failure to follow procedure

SCIENCE	MATH – NUMBER SYSTEMS	COMMUNICATIONS
	Read and interpret charts, tables and/or graphs Given a coding system, recognize and identify each unit involved by assigning necessary symbols, numerical or literal	Appropriate diction, denotative - connotative words, clarity of expression, vocabulary, usage, spelling, details and inference, logic, emotional appeals (propaganda devices) Recommendation report - oral and written Process report or instruction - oral and written Physical experimentation report - oral and written Proposal - oral and written Progress report - oral and written Description of mechanism - oral and written Definition - oral and written Classification Technical terminology Reading comprehension Reading speed Transfer information between client and artist for use in the creation of a piece of art

TOOLS AND EQUIPMENT

NOTE: The basic material, equipment and tool lists are meant to include all things that we consider most basic to all or most tasks.

Tools, equipment and materials
- Tools – less than $50.00 value
- Equipment – more than $50.00 value
- Materials – expendable supplies

Basic Items (considered to be commonly available and may not be specifically itemized.)

Tools –
- Brushes, pointed
- Holder, pen
- Pens
- Instrument, drafting set, including ruling pen
- Triangle, 30-60-90
- Triangle, 45-45-90
- Knife, X-Acto, mat
- French curve
- Scale, fraction
- Scale, decimal (engineer, triangular)
- Scissors
- Sharpening stone
- T-square, straight edge
- Pencil pointer
- Can, rubber cement with brush and thinner
- Water jars

Equipment –
- Table, drawing
- Taboret
- Light, desk (optional)
- Drafting (arm) machine
- Cutter, paper
- Table, light
- Illumination, adequate room
- Filing cabinet

Materials –
- Ink, black india
- Paper, bond, newsprint
- Paper, graphite
- Paper, tracing
- Pencils, graphite drafting, carbon
- Eraser, pearl, kneadable, soap
- Acetate, clear and colored
- Sand paper
- Tape, scotch masking
- Tape, scotch magic
- White opaque watercolor
- Board, illustration
- Board, bristol
- Board, Ross
- Fixatif
- Pastels

APPENDIX

Safety

Fluids

1. Eye or skin irritants
2. Toxic
   a. internal as fluid - or skin penetrative
   b. external as gas or vapor

Pointed or sharp instruments

Paper cutter

Pens, compass, knives, etc.

Electrical or heated

Shock or burn

Explosive when introduced to gas or vapor

Fire

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